

### 13. ELECTRIC UTILITY BOILERS

REVISION OF RULE 475.1 OF THE SOUTH  
COAST AIR QUALITY MANAGEMENT DISTRICT  
(RELATING TO THE CONTROL OF OXIDES OF  
NITROGEN EMISSIONS FROM ELECTRIC POWER  
GENERATING EQUIPMENT)

(ISSUED JANUARY 22, 1979)

State of California  
AIR RESOURCES BOARD

South Coast Air Quality Management District Rule 475.1  
As Amended by the Air Resources Board  
On August 7, 1978

Part I. DEFINITIONS

- (a) Electric Power Generating System means one or more electric power generating units which have a common owner or operator, and which are located in the South Coast Air Basin and/or the Ventura County Air Pollution Control District.
- (b) Electric Power Generating Unit means any fuel burning device used to produce electrical energy for sale or exchange.
- (c) New Electric Power Generating Unit means any electric power generating unit construction of which is commenced on or after the effective date of this Rule.
- (d) Existing Unit or System means any electric power generating unit or system construction of which has been commenced prior to the effective date of this Rule.

- (e) Rate of Oxides of Nitrogen Emissions means the mass, in kilograms or in pounds, of oxides of nitrogen, expressed as nitrogen dioxide, emitted per hour.
- (f) Oxides of Nitrogen Emissions Dispatch means the allocation of electric power demand to the various electric power generating units in any electric power generating system to minimize the rate of oxides of nitrogen emissions from the system.
- (g) Operating Range means all possible rates of electric power generation, expressed in net megawatts, for any electric power generating system or unit.
- (h) BEST AVAILABLE CONTROL TECHNOLOGY means best available control technology as defined in Rule 213.2.

Part II. SYSTEM-WIDE CONTROL

- (a) Subject to the compliance schedules set forth in Section (f) of this Part, no owner or operator of an existing power generating system shall operate that portion of the system which is located in the South Coast Air Basin unless the system is designed such that when all electric power generating units are available, excluding existing combined cycle generating units, the system-wide rate of oxides of nitrogen emissions throughout the operating range of the system will not exceed the applicable maximum allowable rates contained in Part III of this Rule.

- (b) Effective January 1, 1982, the owner or operator of any electric power generating system having a net electric power generating capacity equal to or greater than 500 megawatts, shall reduce by at least 90 percent the rate of oxides of nitrogen emissions, as determined from the data submitted pursuant to Section (f)(2)(A)(ii) of this Part of this Rule, throughout the operating range of at least one unit with a maximum net generating capacity greater than or equal to 100 megawatts within the South Coast Air Basin part of the system. Any such unit shall be termed a Demonstration unit.
- (c) Effective 30 days following the approval by the Executive Officer of an oxides of nitrogen emissions dispatch plan, no owner or operator of an existing electric power generating system shall operate the South Coast Air Basin part of the system except in accordance with an approved oxides of nitrogen emissions dispatch plan.

(d) No owner or operator of an electric power generating system shall operate an electric power generating unit in the South Coast Air Basin part of the system unless each unit in the South Coast Air Basin part of the system which use ammonia to comply with this Part of this Rule, is equipped with instruments to continuously monitor and record the concentration of ammonia in the flue gas. The Executive Officer shall determine the acceptability of any instrument used to comply with this Section prior to its installation. Ammonia concentrations shall be monitored and recorded when ammonia is being introduced into a unit's combustion gas. The recorded data shall be retained by the owner or operator of the electric power generating system for a period of at least two years from the date of recording and shall be available for inspection and/or reproduction upon request of the Executive Officer or the Executive Officer of the Air Resources Board, or their authorized representatives.

(e) No owner or operator of an electric power generating system which was in existence prior to January 1, 1978, shall add any new electric power generating units to the South Coast Air Basin part of the system unless at least all of the following conditions are met:

- (1) Best available control technology, as determined by the Executive Officer, after consultation with the Executive Officer of the Air Resources Board, is employed on the new unit;
- (2) The rate of oxides of nitrogen emissions throughout the electric power generating system's operating range with the new unit(s) added, assuming that all electric power generating units are available and excluding existing combined cycle units, does not exceed the applicable maximum allowable rate of emissions contained in Part III of this Rule when the electric power generating system with the new unit(s) added, is operated according to an oxides of nitrogen emissions dispatch plan.
- (3) Assuming compliance with an oxides of nitrogen emissions dispatch plan, the integral of the rate of oxides of nitrogen emissions with respect to electric power generating system net load in

megawatts, assuming all electric power generating units are available, excluding existing combined cycle units, as indicated by the applicable maximum allowable emission rates contained in Part III of this Rule with the addition of any new unit(s) to the South Coast Air Basin part of the system is less than or equal to the corresponding integral without the addition of the new unit(s); and

(4) The requirements of Rule 213 are satisfied.

(f) Compliance Schedule

(1) The owner or operator of any new electric power generating unit(s) in the South Coast Air Basin part of the system shall demonstrate compliance with the applicable requirements of this Part of this rule prior to placing such new units into service.

(2) The owner or operator of an existing electric power generating system shall comply with the requirements of Section (b) of this Part of this Rule as expeditiously as practicable but not later than January 1, 1982, and shall fulfill the following:

(A) Prior to April 1, 1979, Submit to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board:

(1) A final control plan which identifies the unit

selected to be the demonstration unit and which describes, as a minimum, the steps, including a construction schedule, that will be taken to comply with the requirements of Section (b) of this Part of this Rule. The schedule must show completion of the construction and equipment installation phases of the plan prior to July 1, 1981 and compliance with Section (b) of this Part of this Rule by January 1, 1982; and.

(11) Data showing the rate of oxides of nitrogen emissions at ten or more equally spaced points throughout the operating range of the electric power generating unit(s) to be controlled, when the unit(s) are burning fuel oil.

(B) Prior to July 1, 1979. Sign initial contracts for the construction and installation of equipment to effect the emissions reductions required by Section (b) of this Part of this Rule and issue orders for the purchase of component parts to accomplish such reductions. Such contracts and orders shall be submitted to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board.



(C) Prior to July 1, 1981. Complete construction and installation of emissions control equipment and component parts to accomplish the emissions reductions as indicated on the construction schedule submitted with the final control plan.

(D) By January 1, 1982. Demonstrate compliance with Section (b) of this Part of this Rule and submit to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board, data showing the rate of oxides of nitrogen emissions from the controlled unit(s) at ten or more equally spaced points throughout the operating range of the unit(s).

(3) Except as required by Section (f)(1) and (f)(4) of this Part of this Rule, the owner or operator of an existing electric power generating system shall comply with the provisions of this Part of this Rule as expeditiously as practicable but in no event later than October 1, 1982, and shall fulfill the following:

(A) Prior to April 1, 1979. Submit to the Executive Officer with a copy to the Executive Officer of the Air Resources Board:

- (1) A final control plan which describes, as a minimum, the steps including a construction schedule, that will be taken at each electric power generating unit in the South Coast Air Basin part of this system to comply with the requirements of this Part of this Rule. The schedule must show completion of the construction and equipment installation phases of the plan to achieve the Stage I allowable emission rates contained in Part III of this Rule prior to April 1, 1982 and compliance with this Part of this Rule by October 1, 1982.
- (ii) Data which are representative of the 1978 calendar year rate of oxides of nitrogen emissions at ten or more equally spaced points through the operating range of each electric power generating unit in the South Coast Air Basin part of the system;

(111) An oxides of nitrogen emissions dispatch plan, for the South Coast Air Basin part of the electric power generating system, which will minimize the rate of oxides of nitrogen emissions throughout the electric power generating system's operating range. The demonstration required above shall include as a minimum: 1) the selection criteria used to determine the availability of units for a given day; 2) data showing the rate of oxides of nitrogen emissions throughout the electric power generating system's operating range assuming that all units are available; 3) any computer programs used to develop or implement the dispatch plan; and 4) the criteria used to schedule unit maintenance that would cause a unit to be unavailable. If the Executive Officer determines that the submitted dispatch plan is unacceptable, the owner or operator of the affected electric power generating system shall, after April 1, 1979, be in violation of this Rule until an acceptable plan is submitted;

- (B) Prior to July 1, 1979. Sign initial contracts for the construction and installation of equipment to affect the emissions reductions required by this Part of this Rule to achieve the Stage I maximum allowable emission rates contained in Part III of this Rule and issue orders for the purchase of component parts to accomplish such reductions.
- (C) Prior to April 1, 1982. Complete construction and installation of emissions control equipment and component parts to accomplish emissions reductions to achieve the Stage I maximum allowable emission rates contained in Part III of this Rule as indicated on the construction schedule submitted with the final control plan.
- (D) By October 1, 1982. Demonstrate compliance with this Part of this Rule including achievement of Stage I maximum allowable emission rates contained in Part III of this Rule by submitting to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board, data showing the rate of oxides of nitrogen emissions from each unit at ten or more equally spaced points throughout the operating range of the unit.

(4) Except as required by Sections (f)(2) and (f)(3) of this Part of this Rule, the owner or operator of an existing electric power generating system shall comply with the provisions of this Part of this Rule as expeditiously as practicable but in no event later than January 1, 1990, and shall fulfill the following:

(A) Prior to July 1, 1983. Submit to the Executive Officer with a copy to the Executive Officer of the Air Resources Board a final control plan which describes, as a minimum, the steps including a construction schedule, that will be taken on each electric power generating unit in the South Coast Air Basin part of this system to comply with the requirements of this Part of this Rule. The schedule must show completion of the construction and equipment installation phases of the plan to achieve the Stage II maximum allowable emission rates contained in Part III of this Rule prior to July 1, 1989 and compliance with this Part of this Rule by January 1, 1990;

(B) Prior to January 1, 1984. Sign initial contracts for the construction and installation of equipment to

effect the emissions reductions required by this Part of this Rule to achieve the Stage II maximum allowable emission rates contained in Part III of this Rule and issue orders for the purchase of component parts to accomplish such reductions.

(C) Prior to July 1, 1989. Complete construction and installation of emissions control equipment and component parts to accomplish emissions reductions to achieve the Stage II maximum allowable emission rates contained in Part III of this Rule as indicated on the construction schedule submitted with the final control plan.

(D) By January 1, 1990. Demonstrate compliance with this Part of this Rule including achievement of Stage II maximum allowable emission rates contained in Part III of this Rule by submitting to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board, data showing the rate of oxides of nitrogen emissions from each unit at ten or more equally spaced points throughout the operating range of the unit.

- (g) Any oxides of nitrogen emissions data required by this Part of this Rule shall be based on data obtained from source tests conducted on such units, at such times, and in a manner acceptable to the Executive Officer. Any additional information which is deemed necessary by the Executive Officer to ascertain the validity of any submitted data shall be furnished to the Executive Officer by the owner or operator of the affected unit(s) within 60 days of the Executive Officer's written request. If the Executive Officer determines that the rate of oxides of nitrogen emissions from any unit in the South Coast Air Basin part of the system is different from that shown in data submitted, then the Executive Officer, after notifying in writing the owner or operator of the affected unit(s) of the determination, shall substitute the data from his (her) determination for the data submitted.
- (h) If the Executive Officer determines that any final control plan required by this Part of this Rule will not result in compliance with this Part of this Rule as expeditiously as practicable, but in no event later than required by an applicable compliance schedule in Section (f) of this Part, or will not result in compliance with this Part of this Rule, the owner or operator of the affected electric power generating system shall be deemed in violation of this Rule until such time as an acceptable plan is submitted.

- (i) The owner or operator of an electric power generating system shall be deemed in violation of this Rule if the Executive Officer determines that the rate of oxides of nitrogen emissions from any unit(s) in the South Coast Air Basin part of the system is greater than the rate at a given operating load as shown by the data submitted pursuant to Subsection (2)(D), (3)(D), and (4)(D) of Section (f) of this Part of this Rule, subsequent to the compliance date specified in such section. For the purposes of making a determination on the rate of oxides of nitrogen emissions from a unit, the Executive Officer may employ data obtained by in-stack monitors, continuous source testing equipment, or any other equipment or tests which the Executive Officer determines are acceptable.
- (j) For the purpose of determining compliance with Section (c) of this Part of this Rule, the owner or operator of an electric power generating system shall maintain daily records of the manner in which the electric power generating system was operated. The type of information to be recorded each day and the form in which it is to be reported shall be approvable by the Executive Officer. Such records will be maintained for a period of at least 2 years from the date of recording and shall be available for inspection and/or reproduction upon



request of the Executive Officer, or the Executive Officer of the Air Resources Board, or their authorized representatives.

If the Executive Officer, upon inspection of the information contained in these records or other relevant information, or the Executive Officer of the Air Resources Board, or their authorized representatives determines that the requirements of Section (c) of this Part of this Rule were violated by a unit in the South Coast Air Basin part of the system, the owner or operator of the affected electric power generating system shall be deemed in violation of this Rule.

- (k) The provisions of Section (a), and (b) of this Part of this Rule are not applicable to existing combined cycle gas turbine electric power generating units.
- (l) The provisions of this Part of this Rule are not applicable to simple cycle gas turbine electric power generating units.
- (m) Where it is necessary to determine the rate of oxides of nitrogen emissions at points in the operating range of a unit or system, not coincident with data submitted, the actual rate of oxides of nitrogen emissions shall be determined by linear interpolation.

- (n) Nothing in this Part of this Rule shall be construed to prevent the owners or operators of two or more electric power generating systems from entering into mutual written agreements which state that, for the purpose of this Part of this Rule, their systems will be considered as one. The "Maximum Allowable Emission Rate Table", which is included in Part III of this Rule and which is applicable to said owners or operators, shall be superseded and replaced by a new table of like form that reflects such agreement(s). Such revised table shall be derived by the Executive Officer after consultation with the Executive Officer of the Air Resources Board.
- (o) All oxides of nitrogen emission data and dispatch plans required by this Part of this Rule shall become a part of this Rule upon the approval of such data and plans by the Executive Officer.
- (p) The Executive Officer, prior to making a determination of the acceptability of any plans, data, or any other information required by this Part of this Rule, shall consult with the Air Pollution Control Officer of any other Air Pollution Control District which would be affected by this Part of this

Rule and with the Executive Officer of the Air Resources Board.

- (q) After it has been ascertained that the requirements of sections (f)(2) and (f)(3) of this Part have been met, the Executive Officer shall make a preliminary determination as to whether the Stage II maximum allowable rates of oxides of nitrogen emissions contained in Part III of this Rule are achievable through available control measures by systems subject to this Rule, which preliminary determination shall not become final until it is concurred with by the Air Resources Board. The preliminary and final determinations shall be based on evidence deemed appropriate by the Executive Officer and the Air Resources Board. In particular the following factors shall be considered:
- (1) The performance and cost effectiveness of any control technology including but not limited to the emission reductions achieved on the demonstration unit; (2) The efforts taken by the owners or operators to effect compliance; (3) The emissions of pollutants other than oxides of nitrogen. Only if, pursuant to this section, a final determination is made that such emission rates are not achievable through available control measures, according to the schedule set forth in Section (f)(4), each owner or operator subject to this Rule shall not be required to meet such rates. The failure of the owner or operator of any demonstration unit to design, construct and operate such unit in a good faith effort to achieve compliance with Sections (b) and (f)(2) of this Part, shall be deemed a violation of this Rule, commencing with the effective date of this Rule.

- (r) Prior to the commencement of operation of a new or modified unit or system, the owner or operator of said unit or system shall submit to the Executive Officer for consideration and approval
  - (1) Additional or replacement data showing the rate of oxides of nitrogen emissions at ten or more equally spaced points throughout the operating range of the new or modified unit(s); and
  - (2) A revised oxides of nitrogen emissions dispatch plan incorporating the data submitted pursuant to (r)(1).
- (s) In no case shall a unit be modified to increase its rate of oxides of nitrogen emissions at any point in the unit's operating range.
- (t) The owners or operators of an electric power generating system which was not in existence prior to January 1, 1978, shall employ best available control technology on every unit in the South Coast Air Basin part of the system. The Executive Officer, after consultation with the Executive Officer of the Air Resources Board, shall determine what constitutes best available control technology.

PART III. MAXIMUM ALLOWABLE EMISSIONS RATE TABLES

CONTENTS

TABLE I For electric power generating systems having a total capacity greater than or equal to 5000 megawatts as of January 1, 1978.

TABLE II For electric power generating systems having a total generating capacity of less than 5000 megawatts and equal to or more than 500 megawatts as of January 1, 1978.

TABLE III For electric power generating systems having a total generating capacity of less than 500 megawatts as of January 1, 1978.

TABLE I

MAXIMUM ALLOWABLE RATE OF

EMISSIONS OF OXIDES OF NITROGEN ASSUMING THAT ALL ELECTRIC POWER

GENERATING UNITS IN THE SYSTEM ARE AVAILABLE, AS A FUNCTION OF SYSTEM LOAD

FOR ELECTRIC POWER GENERATING

SYSTEMS HAVING A TOTAL GENERATING

CAPACITY GREATER THAN OR EQUAL TO 5000 MEGAWATTS

AS OF JANUARY 1, 1978

SYSTEM LOAD IN MEGAWATTS	Stage I	Stage II
	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR AFTER OCTOBER 1, 1982	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR AFTER JANUARY 1, 1990
0	0	0
500	284	71
1000	608	152
1500	948	237
2000	1,308	327
2500	1,676	419
3000	2,060	515
3500	2,472	618
4000	2,869	724
4500	3,328	832
5000	3,768	942
5500	4,236	1059
6000	4,740	1185
6500	5,300	1325
7000	5,900	1475
7500	6,672	1668
8000	7,824	1956
8500	10,896	2724
9000 or Greater	15,948	3987

NOTE: To determine the maximum allowable emissions for system loads other than those shown, use linear interpolation between the two system loads that bracket the system load desired.

TABLE II

MAXIMUM ALLOWABLE RATE OF

EMISSIONS OF OXIDES OF NITROGEN ASSUMING THAT ALL ELECTRIC POWER

GENERATING UNITS IN THE SYSTEM ARE AVAILABLE, AS A FUNCTION OF SYSTEM LOAD

FOR ELECTRIC POWER GENERATING

SYSTEMS HAVING A TOTAL GENERATING

CAPACITY OF LESS THAN 5000 MEGAWATTS AND EQUAL TO OR

SYSTEM LOAD IN MEGAWATTS	Stage I	Stage II
	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR AFTER OCTOBER 1, 1982	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR AFTER JANUARY 1, 1990
0	0	0
200	124	31
400	272	68
600	432	108
800	592	148
1000	760	190
1200	936	234
1400	1,116	279
1600	1,316	329
1800	1,540	385
2000	1,784	446
2200	2,048	512
2400	2,368	592
2600	2,700	675
2800	3,048	762
3000	3,448	862
3200	3,920	980
3400 or Greater	4,580	1145

NOTE: To determine the maximum allowable emissions for system loads other than those shown, use linear interpolation between the two system loads that bracket the system load desired.

TABLE III

MAXIMUM ALLOWABLE RATE OF EMISSIONS OF OXIDES OF NITROGEN,  
 ASSUMING THAT ALL ELECTRIC POWER GENERATING UNITS IN THE SYSTEM  
 ARE AVAILABLE, AS A FUNCTION OF SYSTEM LOAD FOR ELECTRIC POWER  
 GENERATING SYSTEMS HAVING A NET GENERATING CAPACITY OF  
 LESS THAN 500 MEGAWATTS AS OF JANUARY 1, 1978

<u>SYSTEM LOAD IN NET MEGAWATTS</u>	Stage I	Stage II
	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR <u>AFTER OCTOBER 1, 1982</u>	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR <u>AFTER JANUARY 1, 1990</u>
0	0	0
20	24	6
40	52	13
60	84	21
80	116	29
100	148	37
120	192	48
140	244	61
160	300	75
180	332	83
200	372	93
220	456	114
240 or Greater	536	134

**Note:** To determine the maximum allowable rate of emissions of oxides of nitrogen for system loads other than those shown, use linear interpolation between the two system loads that bracket the system load desired.



Part I. DEFINITIONS

- (a) Electric Power Generating System means one or more electric power generating units which have a common owner or operator, and which are located in the South Coast Air Basin and/or the Ventura County Air Pollution Control District.
- (b) Electric Power Generating Unit means the minimum number of fossil fuel fired combustion devices or equipment necessary to produce electrical energy for sale or exchange.
- (c) New Electric Power Generating Unit or System means any electric power generating unit or system, construction of which is commenced on or after the effective date of this Rule. A new or modified electric power generating unit (system) does not include an electric power generating unit (system) which exists on the effective date of this Rule and which is modified in order to comply with this Rule.
- (d) Existing Unit or System means any electric power generating unit or system, construction of which has been commenced prior to the effective date of this Rule.
- (e) Rate of Oxides of Nitrogen Emissions means the mass, in kilograms or in pounds, of oxides of nitrogen, expressed as nitrogen dioxide, emitted per hour, and measured in a manner approved by the Executive Officer with the concurrence of the Executive Officer of the Air Resources Board.

- (f) Oxides of Nitrogen Emissions Dispatch means the allocation of electric power demand to the various electric power generating units in any electric power generating system to minimize the rate of oxides of nitrogen emissions from the system.
- (g) Operating Range means all possible rates of electric power generation, expressed in net megawatts between the minimum load and full load, for any electric power generating system or unit.
- (h) Minimum Load means that minimum rate of electric power generation, expressed in net megawatts, below which a unit or system could not be continuously and safely operated.
- (i) Full Load means that maximum continuous and safe electric power generating capability of a unit or system, expressed in net megawatts.
- (j) Best Available Control Technology means best available control technology as defined in Rule 213.
- (k) Unit Table means a tabular presentation of the rate of oxides of nitrogen emissions at each of ten or more equally spaced points throughout the operating range of an electric power generating unit.

## Part II. ALLOWABLE EMISSIONS

### (a) Excessive Emissions

The owner or operator of an electric power generating system shall

not allow the rate of oxides of nitrogen emissions from any unit(s) in the South Coast Air Basin part of the system to exceed that rate at a given operating load as shown by the unit table(s) submitted for each unit(s) pursuant to Subsections (2)(D), (3)(D), and (4)(D) of Section (f) of this Part, subsequent to the compliance date specified in such subsection(s). For the purposes of making a determination on the rate of oxides of nitrogen emissions from a unit, the Executive Officer may employ data obtained by in-stack monitors, continuous source testing equipment or any other equipment or tests which the Executive Officer determines are acceptable, and the Executive Officer shall consider the accuracy of such equipment and manner of such testing in making this determination.

(b) Demonstration Unit

Effective January 1, 1982, the owner or operator of any electric power generating system having a net electric power generating capacity equal to or greater than 500 megawatts, shall reduce by at least 90 percent, the rates of oxides of nitrogen emissions, as determined from the unit table(s) submitted pursuant to Subsection (f)(2)(A)(ii) of this Part, throughout the operating range of at least one unit with a maximum net electric power generating capacity greater than or equal to 100 megawatts, or portion of one unit having an equivalent flue gas volume, within the South Coast Air Basin part of the system. Any such unit shall be termed a demonstration unit. Any system owner or operator which is required to achieve such reduction shall be excused from compliance with this requirement if a final determination is made by

the Executive Officer and with the concurrence of the Executive Officer of the Air Resources Board that all reasonably available steps have been made by such owner or operator to effect such reduction. Any failure to achieve and demonstrate such reduction in accordance with the schedule set forth in Subsection (f)(2) of this Part, except as excused in this Section, shall constitute a violation of this Rule.

(c) Oxides of Nitrogen Emissions Dispatch

Effective 30 days following the approval by the Executive Officer of an oxides of nitrogen emissions dispatch plan, no owner or operator of an existing electric power generating system, exclusive of units exempted from the provisions of this Section pursuant to Section (k) or (u) of this Part, shall operate the South Coast Air Basin part of such system except in accordance with an approved oxides of nitrogen emissions dispatch plan. Such plan shall, as a minimum:

- (1) Ensure that, were all such existing electric power generating units to be available, the system-wide rate of oxides of nitrogen emissions throughout the operating range of the system would not exceed the maximum allowable rates contained in Part III of this Rule, as applicable in accordance with the compliance schedules set forth in Subsections (f)(3) and (f)(4) of this Part, and exclusive of existing combined cycle generating units and units exempted from provisions of this Section pursuant to Section (k) or (u) of this Part; and
- (2) Describe a detailed methodology for system operation which incorporates oxides of nitrogen dispatch for each unit in the system, including combined cycle generating units, but excluding units exempted from the provisions of this Section pursuant to Section (k) or (u) of this Part. Such methodology shall provide adequate detail for a determination by the Executive Officer or the Executive Officer of the Air

Resources Board at any time(s) after plan approval of whether or not operation of each unit is in accordance with oxides of nitrogen emissions dispatch consistent with the availability of units at any time as identified pursuant to Subsection (f)(3)(A)(iii) of this Part. Any operation of an electric power generating system which is determined by the Executive Officer or the Executive Officer of the Air Resources Board to be out of accordance with such methodology shall constitute a violation of this Rule.

(d) Continuous Monitoring of Ammonia

No owner or operator of an electric power generating system shall operate an electric power generating unit in the South Coast Air Basin part of the system unless each of the system's units which uses ammonia to comply with this Part is equipped with instruments to continuously monitor and record the concentration of ammonia in the flue gas. The Executive Officer shall determine the acceptability of any instrument used to comply with this Section prior to its installation. Ammonia concentrations shall be monitored and recorded when ammonia is being introduced into a unit's combustion gases. The recorded data shall be retained by the owner or operator of the electric power generating system for a period of at least two years from the date of recording and shall be available for inspection and/or reproduction upon request of the Executive Officer or the Executive Officer of the Air Resources Board, or their authorized representatives.

(e) Existing Systems: Requirements for New Units

No owner or operator of an electric power generating system shall add any new electric power generating unit(s) to the South Coast Air Basin part of the system unless the requirements of Rule 213 are satisfied.

(f) Compliance Schedules

(1) New Units

The owner or operator of any new electric power generating unit(s) in the South Coast Air Basin part of the system shall demonstrate compliance with the applicable requirements of this Rule prior to the issuance of a permit to operate such new unit(s).

(2) Demonstration Units

The owner or operator of an existing electric power generating system shall comply with the requirements of Section (b) of this Part as expeditiously as practicable but not later than January 1, 1982, and shall fulfill the following:

(A) Prior to April 1, 1979. Submit to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board:

- (i) A final control plan which identifies the unit selected to be the demonstration unit and which describes, as a minimum, the steps, including a construction schedule, that will be taken to comply with the requirements of Section (b) of this Part. The schedule must show completion of the construction and equipment installation phases of the plan prior to October 1, 1981 and compliance with Section (b) of this Part of this rule by January 1, 1982; and,
- (ii) For each unit(s) to be controlled, a unit table(s) applicable when that unit(s) is burning oil for the 1978 calendar year. If it is demonstrated in the final control plan that a unit(s) is incapable of burning oil in the 1978 calendar year and the Executive Officer concurs, then an interim unit table(s), applicable when that unit(s) is capable of

burning only natural gas, shall satisfy the requirements of this Subsection and shall be used for all purposes of this Rule, except for determination of compliance pursuant to Section (b). Within 90 days of such time as that unit(s) is capable of burning oil, unit tables shall be submitted to the Executive Officer showing the rate of oxides of nitrogen emissions immediately downstream of that unit and immediately downstream of all emissions control equipment of that unit, burning oil and they shall supercede, for all purposes of this Rule, the interim unit table(s) applicable when that unit(s) is capable of burning gas.

- (B) Prior to January 1, 1980. Sign initial contracts for the construction and installation of equipment to begin to effect the emissions reductions required by Section (b) of this Part and issue orders for the purchase of component parts to accomplish such reductions. Such contracts and orders shall be submitted to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board.
- (C) Prior to October 1, 1981. Complete construction and installation of emissions control equipment and component parts to accomplish the emissions reductions as indicated on the construction schedule submitted with the final control plan.

(D) By January 1, 1982. Demonstrate compliance with Section (b) of this Part. Such demonstration shall include the submission of unit tables for each unit to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board.

(3) Existing Systems: Compliance with Stage I Emissions Rates

Except as required by Subsection (f)(2) and (f)(4) of this Part, the owner or operator of an existing electric power generating system shall comply with the provisions of this Part as expeditiously as practicable but in no event later than December 31, 1982, and shall fulfill the following:

(A) Prior to April 1, 1979. Submit to the Executive Officer with a copy to the Executive Officer of the Air Resources Board:

- (i) A final control plan which describes, as a minimum, the steps including a construction schedule, that will be taken at each electric power generating unit in the South Coast Air Basin part of this system to comply with the requirements of Subsection (f)(3) and Section (t) of this Part. The schedule must show completion of the construction and equipment installation phases of the plan to achieve the Stage I allowable emission rates contained in Part III of this Rule prior to September 1, 1982, and compliance with this Part by December 31, 1982; and
- (ii) For each unit to be controlled, a unit table applicable when that unit is burning oil for the 1978 calendar year except for unit(s) incapable of burning oil in the 1978 calendar year, in which case Subsection (f)(2)(ii) shall apply for that unit(s).



- (iii) An acceptable oxides of nitrogen emissions dispatch plan, for the South Coast Air Basin part of the electric power generating system, which will minimize the rate of oxides of nitrogen emissions throughout the operating range of the electric power generating system in accordance with the provisions of Section (c) of this Part, and which includes, as a minimum: 1) the selection criteria used to determine the availability of units for a given day including identification of those criteria necessary for maintaining system reliability and the performance of on-line maintenance and testing; 2) data showing the rate of oxides of nitrogen emissions throughout the electric power generating system's operating range assuming that all units are available as determined in accordance with the criteria specified in this subsection; 3) any computer programs used to develop or implement the dispatch plan; and 4) the criteria used to schedule unit maintenance that would cause a unit to be unavailable, including identification of those criteria necessary for maintaining system reliability and the performance of on-line maintenance and testing. If the Executive Officer or the Executive Officer of the Air Resources Board determines that the submitted dispatch plan fails to satisfy the minimum requirements prescribed in this Rule, or if the Executive Officer determines and the Executive Officer of the Air Resources Board concurs that the submitted dispatch plan would with

reasonable certainty, result in a localized area(s) of ambient air quality standard violations being generated by a unit(s) which is not controlled by the application of available control and control maximization techniques, except those techniques which are shown pursuant to Section (t) of this Part, to be not cost-effective, such plan shall be unacceptable, and the owner or operator of the affected electric generating system shall, after April 1, 1979, be in violation of this Rule until a plan acceptable to the Executive Officer is submitted;

(B) Prior to July 1, 1979. Sign initial contracts for the construction and installation of equipment to begin to effect the emissions reductions required pursuant to an approved final control plan to achieve the Stage I maximum allowable emission rates contained in Part III of this Rule and issue orders for the purchase of component parts to begin to accomplish such reductions.

(C) Prior to September 1, 1982. Complete construction and installation of emissions control equipment and component parts to accomplish emission reductions required pursuant to an approved final control plan to achieve the Stage I maximum allowable emission rates contained in Part III of this Rule as indicated on the construction schedule submitted with the final control plan.

(D) By December 31, 1982. Demonstrate compliance with this Section of this Rule including achievement of Stage I maximum allowable emission rates contained in Part III of this Rule. Such demonstration shall include the submission of a unit table for each unit to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board.

(4) Existing Systems: Compliance with Stage II Maximum Allowable Emission Rates:

Except as required by Subsections (f)(2) and (f)(3) of this Part and unless a final determination is made pursuant to Section (p) of this Part that the Stage II Emission Rates contained in Part III of this Rule are not achievable, the owner or operator of an existing electric power generating system shall comply with the provisions of this Subsection of this Part as expeditiously as practicable but in no event later than January 1, 1990, and shall fulfill the following:

(A) Prior to July 1, 1983. Submit to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board, a final control plan which describes, as a minimum, the steps, including a construction schedule, that will be taken at each electric power generating unit in the South Coast Air Basin part of this system to comply with the requirements of this Rule. The schedule must show completion of the

construction and equipment installation phases of the plan to achieve the Stage II maximum allowable emission rates contained in Part III of this Rule prior to October 1, 1989, and compliance with this Part by January 1, 1990;

- (B) Prior to January 1, 1984. Sign initial contracts for the construction and installation of equipment to effect the emissions reductions required by this Part of this Rule to achieve the Stage II maximum allowable emission rates contained in Part III of this Rule and issue orders for the purchase of component parts to accomplish such reductions.
- (C) Prior to October 1, 1989. Complete construction and installation of emissions control equipment and component parts to accomplish emissions reductions to achieve the Stage II maximum allowable emission rates contained in Part III of this Rule as indicated on the construction schedule submitted with the final control plan.
- (D) By January 1, 1990. Demonstrate compliance with this Part, including achievement of Stage II maximum allowable emission rates contained in Part III of this Rule. Such demonstration shall include the submission of a unit table for each unit to the Executive Officer, with a copy to the Executive Officer of the Air Resources Board.

(g) Data Requirements.

Any oxides of nitrogen emissions data, including unit tables, required by this Part shall be based on data obtained from source tests conducted on applicable units, at such times and in a manner acceptable to the Executive Officer. Any additional information which is deemed necessary by the Executive Officer to ascertain the validity of any submitted data shall be furnished to the Executive Officer by the owner or operator of the affected unit(s) within 60 days of the Executive Officer's written request. If the Executive Officer determines that the rate of oxides of nitrogen emissions from any unit in the South Coast Air Basin part of the system is different from that shown in data submitted, then the Executive Officer, after notifying in writing the owner or operator of the affected unit(s) of the determination, may substitute the data from his or her determination for the data submitted.

(h) Final Control Plans.

If the Executive Officer determines that any final control plan required by this Part will not result in compliance with this Part as expeditiously as practicable, but in no event later than required by an applicable compliance schedule in Section (f) of this Part, the owner or operator of the affected electric power generating system shall be in violation of this Rule, commencing on the date of the Executive Officer's disapproval, until such time as a plan has been approved.

(i) Records

For the purpose of determining compliance with Section (c) of this Part, the owner or operator of an electric power generating system shall maintain daily records of the manner in which the electric power generating system was operated. The type of information to be recorded each day and the form in which it is to be recorded shall be specified by the Executive Officer, with the concurrence of the Executive Officer of the Air Resources Board. Such records shall be maintained for a period of at least two years from the date of recording and shall be available for inspection and/or reproduction upon request of the Executive Officer, or the Executive Officer of the Air Resources Board, or their authorized representatives.

If the Executive Officer, or the Executive Officer of the Air Resources Board, or his(her) authorized representatives, upon inspection of the information contained in these records or other relevant information, determines that the requirements of Section (c) of this Part were violated by a unit in the South Coast Air Basin part of the system, the owner or operator of the affected electric power generating system shall be in violation of this Rule.

(j) Combined Cycle Units: Partial Exemption

The provisions of Sections (b) and (t) of this Part are not applicable to electric power generating units which are permitted to operate as combined cycle gas turbine electric power generating units on or before the effective date of this Rule.

(k) Simple Cycle Gas Turbine Units: Exemption

The provisions of this Rule are not applicable to simple cycle gas turbine electric power generating units.

(l) Interpolation

The rate of oxides of nitrogen emissions at points in the operating range of a unit or system, not coincident with data submitted, shall be determined by linear interpolation between the two points that bracket the point desired.

(m) Agreement to Combine Systems

Nothing in this Rule shall be construed to prevent the owners or operators of two or more electric power generating systems from entering into mutual written agreements which state that, for the purpose of this Rule, except Section (b), their systems will be considered as one. The "Maximum Allowable Emission Rate Table," which is included in Part III of this Rule and which is applicable to said owners or operators, shall be superseded and replaced by a new table of like form that reflects such agreement(s) and provides for an identical system-wide level of control. Such revised table shall be derived by the Executive Officer after consultation with the Executive Officer of the Air Resources Board.

(n) Incorporation of NOx Data and Dispatch Plans

All oxides of nitrogen emission data, unit tables, and dispatch plans required by this Rule shall become enforceable as a part of this Rule upon

the approval of such data, unit tables, and dispatch plans by the Executive Officer.

(o) Consultation With Other Districts

The Executive Officer, prior to making a determination regarding the acceptability of any plans, data, or any other information required by this Rule, shall consult with the Air Pollution Control Officer of any other Air Pollution Control District which would be affected by this Rule and with the Executive Officer of the Air Resources Board.

(p) Demonstration Unit Assessment: Application of All Reasonably Available Steps

At any time after the owner or operator of an electric power generating system has achieved at least a 90 percent reduction of oxides of nitrogen emissions on a demonstration unit, or has been excused from compliance with this requirement, pursuant to Subsection (b) of Part II, such owner or operator may request from the Executive Officer a preliminary determination as to whether its electric power generating system can achieve the Stage II maximum allowable rates of oxides of nitrogen emissions contained in Part III of this Rule, through any available control measures or combinations of available control measures.

Within 60 days of receiving such request, the Executive Officer shall conduct a public hearing on the matter. The owner or operator, and any other interested party shall have the right to appear and present evidence at such hearing.



The burden of proof shall be upon the party seeking to be excused from compliance with Stage II emission rates to show that compliance with such rates is not technically feasible or is not cost-effective within the timetable set for compliance by this Rule. In making a preliminary determination, the Executive Officer shall consider the following factors:

- 1) The performance and cost-effectiveness of any available control measures or combinations of available control measures including but not limited to the technology employed on the demonstration unit;
- 2) The efforts taken by the owner or operator to effect compliance; and
- 3) The emissions of pollutants other than oxides of nitrogen.

The Executive Officer shall make a preliminary determination within 30 days after the public hearing. If the Executive Officer determines that compliance with Stage II emission rates is not technically feasible or cost-effective within the timetable set by this Rule, (s)he shall excuse the owner or operator from compliance, or shall postpone the date by which compliance is required, or shall modify the Stage II maximum allowable rate of oxides of nitrogen emissions prescribed in Part III, to the extent this is supported by the evidence.

Any such preliminary determination by the Executive Officer to excuse or postpone compliance with Stage II allowable emission rates or to modify Stage II allowable emission rates shall not become final until it is approved by the Air Resources Board. The Executive Officer may, within 30 days of such preliminary determination, petition the Air Resources Board to grant or withhold such approval. If the owner or operator is dissatisfied

with the preliminary determination of the Executive Officer, it may within 30 days of such determination petition the Air Resources Board for review of the preliminary determination. The Air Resources Board may, in consideration of such petitions, review the evidence presented by the petitioner, by the Executive Officer, or any other evidence deemed relevant by the Board, including, but not limited to all of the factors identified in this Section and the cost-effectiveness and technical feasibility of alternative control measures to achieve the same or greater emission reductions. After reviewing such evidence, the Board may (1) affirm the decision of the Executive Officer, (2) modify a decision of the Executive Officer regarding a final compliance date(s), (3) modify a decision of the Executive Officer regarding the Stage II maximum allowable rate of oxides of nitrogen, or (4) take other action which it deems appropriate.

(q) New Units or Systems: Data Required

Prior to the commencement of operation of a new or modified unit or system, the owner or operator of said unit or system shall submit to the Executive Officer, for consideration of approval, the following:

- (1) Additional or replacement unit tables for each new or modified unit; and
- (2) A revised oxides of nitrogen emissions dispatch plan which satisfies the requirements of Subsection (c)(2) and which incorporates the unit tables submitted pursuant to Subsection (q)(1) of this Section.

(r) Modifications to Existing Units

No existing unit shall be modified to increase its rate of oxides of nitrogen emissions at any point in the unit's operating range. Existing units which are converted to combined cycle gas turbine electric power generating units shall be excused from this requirement, and such combined cycle gas turbine electric power generating units shall, for the purposes of this Rule, be considered new units.

(s) New Systems: Requirements for New Units

The owner or operator of an electric power generating system which consists entirely of one or more electric power generating units that are not permitted to operate prior to the effective date of this Rule shall not operate any new electric power generating unit(s) in the South Coast Air Basin unless the requirements of Rule 213 are satisfied.

(t) Maximized Emission Reductions, Stage I

Subject to the compliance schedules set forth in Subsection (f)(3) of this Part, the owner or operator of an electric power generating system shall take all reasonable steps as are necessary to achieve the Stage I maximum allowable emissions prescribed in Part III of this Rule and to minimize the rate of oxides of nitrogen emissions from each unit which is not exempt from the provisions of this Section pursuant to Sections (k) or (u) of this Part and which is not a combined cycle generating unit and which is located in the South Coast Air Basin portion of the system. For each such unit, reasonable steps shall include, as a minimum, use of available techniques for increasing the portion of the operating range of each unit

over which emission control(s) can be applied, but excluding, for that unit, each technique(s) which is demonstrated in a final control plan submitted pursuant to Subsection (f)(3) of this Part not to be cost-effective. Such demonstration shall be made by comparing the control cost-effectiveness for that unit and for that control or control maximization technique(s), on the basis of cost per unit mass of oxides of nitrogen removed, expressed as dollars per ton of nitrogen dioxide removed, with the a control cost-effectiveness of the control or control maximization technique which has the highest cost per unit mass of oxides of nitrogen removed of any control or control maximization technique which is a part of final control plan submitted pursuant to Subsection (f)(3) of this Part, but exclusive of any control(s) needed to comply with Section (b) of this Part.

(u) Alternative Energy Projects

- (1) Exemptions: The provisions of this Rule, exclusive of Subsection (u)(2) of this Part, are not applicable to a cogeneration unit(s) or a unit(s) in which refuse-derived fuel or biomass-derived fuel is burned to satisfy at least 50 percent of the total heat demand of that unit(s). For the purposes of this Rule, cogeneration unit(s) means any electric power generating unit(s) which concurrently recovers for sale by the electric power generating system owner or operator a substantial fraction, to be determined by the Executive Officer but in no event less than 25 percent, of the input energy as other forms of energy for utilization for industrial or commercial heating or cooling purposes. For the purposes of this Rule, cogeneration

units do not include combined cycle generating units.

- (2) Modified Units: All existing units which are not exempted from the provisions of this Rule pursuant to Subsection (u)(1) of this Part on the date of adoption of this Rule, but which are modified thereafter in such a manner as to provide exemption from the provisions of this Rule pursuant to Subsection (u)(1) of this Part, shall, for the purposes of this Rule, be considered new units and shall be subject to the provisions of Rule 213.

Part III. MAXIMUM ALLOWABLE EMISSIONS RATE TABLES

TABLE I  
MAXIMUM ALLOWABLE RATE OF  
EMISSIONS OF OXIDES OF NITROGEN ASSUMING THAT ALL ELECTRIC POWER  
GENERATING UNITS IN THE SYSTEM ARE AVAILABLE, AS A FUNCTION OF NET SYSTEM LOAD  
FOR ELECTRIC POWER GENERATING  
SYSTEMS HAVING A TOTAL GENERATING  
CAPACITY GREATER THAN OR EQUAL TO 5000 MEGAWATTS  
AS OF JANUARY 1, 1978

NET SYSTEM LOAD IN MEGAWATTS	Stage I	Stage II
	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR AFTER DECEMBER 31, 1982	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR AFTER JANUARY 1, 1990
0	0	0
500	354	71
1000	756	152
1500	1,185	237
2000	1,632	327
2500	2,091	419
3000	2,570	514
3500	3,086	618
4000	3,614	723
4500	4,155	831
5000	4,709	942
5500	5,209	1058
6000	5,923	1185
6500	6,618	1324
7000	7,372	1475
7500	8,328	1666
8000	9,779	1956
8500	13,624	2725
9000 or Greater	21,345	4269

NOTE: To determine the maximum allowable emissions for net system loads other than those shown, use linear interpolation between the two net system loads that bracket the net system load desired.

TABLE II

MAXIMUM ALLOWABLE RATE OF

EMISSIONS OF OXIDES OF NITROGEN ASSUMING THAT ALL ELECTRIC POWER

GENERATING UNITS IN THE SYSTEM ARE AVAILABLE, AS A FUNCTION OF NET SYSTEM LOAD

FOR ELECTRIC POWER GENERATING

SYSTEMS HAVING A TOTAL GENERATING

CAPACITY OF LESS THAN 5000 MEGAWATTS AND EQUAL TO OR

MORE THAN 500 MEGAWATTS AS OF JANUARY 1, 1978

NET SYSTEM LOAD IN MEGAWATTS	Stage I	Stage II
	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR AFTER DECEMBER 31, 1982	MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR AFTER JANUARY 1, 1990
0	0	0
200	153	31
400	338	68
600	539	108
800	742	149
1000	952	191
1200	1,171	235
1400	1,397	280
1600	1,645	329
1800	1,924	385
2000	2,228	446
2200	2,560	512
2400	2,960	592
2600	3,373	675
2800	3,811	763
3000	4,308	862
3200	4,901	981
3400 or Greater	5,868	1164

NOTE: To determine the maximum allowable emissions for net system loads other than those shown, use linear interpolation between the two net system loads that bracket the net system load desired.

TABLE III

MAXIMUM ALLOWABLE RATE OF

EMISSIONS OF OXIDES OF NITROGEN, ASSUMING THAT ALL ELECTRIC POWER

GENERATING UNITS IN THE SYSTEM ARE AVAILABLE, AS A FUNCTION OF NET SYSTEM LOAD

FOR ELECTRIC POWER GENERATING

SYSTEMS HAVING A NET GENERATING

CAPACITY OF LESS THAN 500 MEGAWATTS

AS OF JANUARY 1, 1978

<u>NET SYSTEM LOAD IN MEGAWATTS</u>	Stage I	Stage II
	<u>MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOURS, ON OR AFTER DECEMBER 31, 1982</u>	<u>MAXIMUM ALLOWABLE RATE OF OXIDES OF NITROGEN EMISSIONS POUNDS/HOUR, ON OR AFTER JANUARY 1, 1990</u>
0	0	0
20	29	6
40	68	14
60	106	22
80	145	29
100	188	38
120	240	50
140	305	62
160	375	76
180	415	92
200	465	94
220	570	113
240 or Greater	660	132

NOTE: To determine the maximum allowable rate of emissions of oxides of nitrogen for net system loads other than those shown, use linear interpolation between the two net system loads that bracket the net system load desired.



14. GAS-FIRED, FAN TYPE  
CENTRAL FURNACES

MODEL RULE FOR NATURAL GAS-FIRED,  
FAN TYPE CENTRAL FURNACES

## Model Rule for Natural Gas-Fired Fan Type Central Furnaces

### I. General Applicability

This rule shall apply to all natural gas-fired fan type central furnaces with the following exceptions:

1. All furnaces installed in mobile homes at the time of construction; and
2. All furnaces designed expressly for use in recreational vehicles and other mobile equipment.

### II. Definitions

Fan Type Central Furnace: a self-contained space heater providing for circulation of heated air at pressures other than atmospheric through ducts more than 10 inches in length.

Seasonal Efficiency: shall be as certified to the California Energy Commission under the provisions of California Administrative Code, Title 20, Chapter 2, Subchapter 4, Article 4, Sections 1603 to 1607 (Appliance Efficiency Standards).

Single Package Central Air Conditioner: shall be as defined in the California Administrative Code, Title 20, Chapter 2, Subchapter 4 Article 4, Section 1602 (Appliance Efficiency Standards).

Useful Heat Delivered to the Heated Space: seasonal efficiency (expressed as a fraction) multiplied by the heat input.

### III. Standards

After the dates listed below, a person shall not sell or offer for sale any natural gas-fired fan type central furnace which emits more than 12 nanograms of  $\text{NO}_x$  (calculated as  $\text{NO}_2$ ) per joule of useful heat delivered to the heated space. Applicable dates are:

January 1, 1984, for natural gas-fired fan type central furnaces with input rates less than 51.3 kW (175,000 Btu per hour) except those combined with a single package central air conditioner with rated capacity exceeding 19.0 kW (65,000 Btu per hour).

January 1, 1986, for all natural gas-fired fan type central furnaces.

### IV. Application for Certification of an Appliance Model

An application for certification is to be submitted for each appliance model indicated in Section I as being affected by this rule. The application is to contain the following information:

1. The applicant's name and address
2. Type of appliance
3. Brand name and model number
4. Name and address of laboratory(ies) performing required testing
5. Results of required testing showing emission rate in units of nanograms of  $\text{NO}_x$  (as  $\text{NO}_2$ ) per joule of useful heat delivered to the heated space
6. Seasonal efficiency

7. A declaration certifying that the appliance model complies with the limits of this rule. This declaration shall be signed and dated, and shall attest to the accuracy of all statements submitted under penalty of perjury. Where the manufacturer is either a corporation or a business association, the declaration shall be signed and attested to by an officer thereof.

V. Certification of an Appliance Model

The Air Pollution Control Officer, upon review of the application for certification of an appliance model, and any other pertinent data, and upon finding that the model complies with the requirements of Section III of this rule, shall return a copy of the application to the applicant with a seal of approval thereon. Thereafter, the manufacturer shall print on the appliance as well as on the shipping carton sufficient information to determine compliance with this rule.

The Air Pollution Control Officer, to cover the cost of certification, may charge a fee not to exceed the actual cost incurred. If after certification of a system, the Air Pollution Control Officer finds the system fails to meet the requirements of Section III as certified, the Air Pollution Control Officer may, as appropriate, revoke or modify the certification. Except in cases where the public safety requires immediate protection, the Air Pollution Control Officer shall not revoke or modify a prior certification without the manufacturer's consent unless a public hearing is conducted. The manufacturer shall be notified of the public hearing in writing and the notification shall be given so as to be received by the manufacturer at least ten days before the hearing date.

## VI. Test Procedures

### A. Emission Measurement Procedure

Samples of flue gas shall be secured in accordance with the procedure specified in American National Standard Z21.47-1973, Section 2.4, at normal test pressure and supply voltage. The samples shall be analyzed for oxides of nitrogen in accordance with the procedure specified in EPA Reference Method Seven, "Determination of Nitrogen Oxide Emissions from Stationary Sources" (40 CFR Part 60), or equivalent procedure approved by the Air Resources Board. Oxygen concentration shall be measured in accordance with the procedure specified in EPA Reference Method Three, "Gas Analysis for CO<sub>2</sub>, Oxygen, Excess Air, and Dry Molecular Weight" (40 CFR Part 60), or equivalent procedure approved by the Air Resources Board. Samples of NO<sub>x</sub> and O<sub>2</sub> shall be taken simultaneously. A minimum of three such samples shall be taken and the results averaged for the purpose of determining the values of P and Y in part B of this section. If continuous monitors are employed, tests shall be conducted for a minimum of five minutes and a maximum of fifteen minutes, with the NO<sub>x</sub> and O<sub>2</sub> monitors operating simultaneously. The results to be used for analysis shall be the averages over the testing period.

B. Calculations

The following expression shall be used to determine compliance with the requirements of Section III:

$$\begin{array}{l} \text{nanograms of NO}_x \text{ emitted per} \\ \text{joule of useful}^x \text{ heat delivered} \\ \text{to the heated space} \end{array} = \frac{(3.655 \times 10^{10})P}{(20.9 - Y) Z E}$$

where: P = parts per million of NO<sub>x</sub>

Y = percentage of O<sub>2</sub> in flue gas

Z = heating value of gas in  $\frac{\text{joules}}{\text{meter}^3}$

E = seasonal efficiency (percentage)

## 15. COKE CALCINING

MODEL RULE FOR CONTROLLING EMISSIONS  
OF SULFUR OXIDES FROM PETROLEUM COKE  
CALCINING FACILITIES

(FEBRUARY 23, 1978)

State of California

AIR RESOURCES BOARD

Model Rule for Controlling  
Emissions of Sulfur Oxides from Petroleum  
Coke Calcining Facilities

Recommended for Adoption by the  
South Coast Air Quality Management District

Approved

February 23, 1978



Model Rule for  
Controlling Emissions of Sulfur Oxides  
from Petroleum Coke Calcining Facilities

RULE: Sulfur Oxides from Petroleum Coke Calcining Kilns

A. Existing Petroleum Coke Calcining Kilns

(1) A person shall not discharge or allow the discharge into the atmosphere from any petroleum coke calcining kiln in existence prior to July 1, 1978, effluent process gas containing sulfur compounds expressed as sulfur dioxide greater than the following amounts:

- (a) 750 grams of sulfur compounds per metric ton of coke charged (1.5 pounds per ton);
- (b) 25 kilograms (55 pounds) of sulfur compounds measured over any continuous one hour period.

The discharge of sulfur compounds greater than either or both of the above amounts shall be deemed a violation of this rule.

(2) The owners or operators of existing petroleum coke calcining kilns shall comply with the emissions limitations specified in Section (1) of this rule as expeditiously as practicable but in any event no later than January 1, 1981, and shall fulfill the following increments of progress:

- (i) Prior to October 1, 1978. Submit to the Executive Officer of the District a final control plan which describes

(2)

as a minimum, the steps, including a construction schedule, that will be taken to achieve compliance with the provisions of this rule. The schedule must show completion of the construction and equipment installation phases of the plan prior to July 1, 1980, and compliance with this rule by January 1, 1981.

- (ii) Prior to March 1, 1979. Negotiate and sign all necessary contracts for the construction or installation of emission control equipment, or issue orders for the purchase of component parts to accomplish emission control.
- (iii) Prior to July 1, 1979. Initiate on-site construction or installation of emission control equipment as indicated on the construction schedule submitted with the final control plan.
- (iv) Prior to July 1, 1980. Complete on-site construction or installation of emission control equipment as indicated on the construction schedule submitted with the final control plan.
- (v) By January 1, 1981. Demonstrate final compliance with the provisions of this rule.

B. New Petroleum Coke Calcining Kilns

A person shall not discharge or allow the discharge into the atmosphere from any petroleum coke calcining kiln constructed on or after July 1, 1978, effluent process gas containing sulfur compounds expressed as sulfur dioxide greater than the following amounts:

(3)

1. 450 grams of sulfur compounds per metric ton of coke charged (0.90 pounds per ton);
2. 20 kilograms (44 pounds) of sulfur compounds measured over any continuous one hour period.

The discharge of sulfur compounds greater than either or both of the above amounts shall be deemed a violation of this rule.

C. Test Procedure

The test procedure(s) used for determining compliance with the emission limitations specified in parts A and B of this rule shall be approved by the Executive Officer of the District with concurrence by the Executive Officer of the Air Resources Board.

16. MARINE LIGHTERING

SEE #8.

## 17. OIL FIELD STEAM GENERATORS

PROPOSED RULE FOR CONTROL OF EMISSIONS OF  
SULFUR COMPOUNDS FROM STEAM GENERATORS AND  
BOILERS USED IN OILFIELD OPERATIONS IN THE  
KERN COUNTY AIR POLLUTION CONTROL DISTRICT

DATE OF RELEASE: FEBRUARY 21, 1979

SCHEDULED FOR CONSIDERATION: MARCH 23, 1979

State of California

AIR RESOURCES BOARD

Proposed Rule For Control Of  
Emissions Of Sulfur Compounds From Steam Generators  
And Boilers Used In Oilfield Operations In The  
Kern County Air Pollution Control District

Add to the Rules of the Kern County Air Pollution Control District:

424. *Sulfur Compounds From Oilfield Steam Generators And Boilers:*

- A. *After January 1, 1982, no owner or operator of a steam generator or boiler with a heat input capacity equal to or more than fifteen million British thermal units per hour and which was permitted prior to February 21, 1979 and which does not have permit requirements to discharge exhaust gas to a flue gas desulfurization device shall discharge to the atmosphere sulfur compounds in which the sulfur weighs more than 0.12 pounds per million British thermal units of heat input.*
- B. *No owner or operator of a steam generator or boiler with a heat input capacity equal to or more than fifteen million British thermal units per hour which receives a permit after March 23, 1979 or which received a permit prior to February 21, 1979, such prior permit having requirements that the exhaust gas be discharged to a flue gas desulfurization device, shall discharge to the atmosphere sulfur compounds in which sulfur weighs more than 0.058 pounds per million British thermal units of heat input.*

February 21, 1979

- C. *Owners and operators subject to the provisions of Paragraph A of this rule shall comply with the following increments of progress:*
1. *By May 1, 1980, submit to the Air Pollution Control Officer an outline of the method of achieving compliance with the provisions of Paragraph A:*
  2. *By August 1, 1980, submit to the Air Pollution Control Officer copies of purchase orders for control equipment required to achieve compliance;*
  3. *By May 1, 1981, commence construction of control equipment; and*
  4. *By January 1, 1982, be in compliance with the requirements of Paragraph A.*
- D. *Definition of steam generator or boiler. A steam generator or boiler shall mean a fossil-fuel-fired combustion device that evaporates water to dry steam or to a mixture of water vapor and water that has an absolute pressure of more than thirty pounds per square inch.*
- E. *An owner or operator of a group of two or more steam generators may comply with the requirements of Paragraph A of this rule by averaging emissions such that the weight of emissions of sulfur in sulfur compounds emitted per hour is no more than if each*

*steam generator individually complied with the requirements of Paragraph A of this rule, respectively, if such steam generators are located such that the centerline of the stack of any steam generator is no more than one quarter mile from the centerline of the stack of the closest steam generator of the group.*

- F. 1) *The owner or operator of a steam generator or boiler shall not be subject to the requirements of paragraph A of this rule if the owner of the steam generator or boiler designates (and informs the Air Pollution Control Officer in writing of such designation) such steam generator or boiler as one which:*
- a) will be taken out of service when at least the same quantity of steam from a cogeneration facility will be used in lieu of the steam produced by such steam generator; and*
  - b) would normally be scheduled to produce steam for at least twenty years from the date the cogeneration facility is scheduled to produce steam.*
- 2) *The owner of such steam generator must be a party to a binding written agreement that proposes, unilaterally or in consort with owners of other such steam generators and boilers, the construction and operation of a facility to produce electrical energy and process steam, known herein as a cogeneration facility, which meets the requirements of paragraph 1). At least 20 per-cent of the heat input to such cogeneration facility must be*



February 21, 1979

*converted to electrical energy. Any such agreement shall be completed and fully executed before January 1, 1980, and a copy thereof shall be provided for the Air Pollution Control Officer.*

*3) The owner or operator of a steam generator or boiler exempted by this subsection will immediately become subject to the requirements of paragraph A if the proposed electrical generation capacity is equal to or more than 300 megawatts and if the proponent of the cogeneration facility does not comply with the following increments of progress:*

- a) not later than January 1, 1981, file Notice of Intent with the California Energy Resources Conservation and Development Commission (hereinafter called Commission) to construct a cogeneration facility;*
- b) not later than July 1, 1981, receive a determination by the Commission that the Notice of Intent is complete and acceptable;*
- c) not later than 30 days after a favorable decision of the Commission on the Notice of Intent, file applications for all permits that will be required for the cogeneration facility;*
- d) not later than one year after a favorable decision of the Commission on the Notice of Intent, commence construction of the cogeneration facility; and*
- e) not later than five years after a favorable decision of the Commission on the Notice of Intent, complete construction of the cogeneration facility.*

- 4) The owner or operator of a steam generator or boiler exempted by this subsection will immediately become subject to the requirements of paragraph A if: 1) the proposed electrical generating capacity is less than 300 megawatts; and 2) the proposed facility is subject to certification requirements of the California Energy Resources Conservation and Development Commission (hereinafter called Commission); and 3) the proponent of the proposed facility does not comply with the following increments of progress:
- a) not later than January 1, 1981, file Application for Certification (hereinafter called Application) with the Commission to construct a cogeneration facility;
  - b) not later than 30 days after a favorable decision of the Commission on the Application, file applications for all permits that will be required for the cogeneration facility;
  - c) not later than one year after a favorable decision by the Commission on the Application, commence construction of the cogeneration facility; and
  - d) not later than five years after a favorable decision by the Commission on the Application, complete construction of the cogeneration facility.
- 5) The owner or operator of a steam generator or boiler exempted by this paragraph and subject to the requirements of paragraph F 3) or F 4) herein shall immediately become subject to the requirements of paragraph A if an unfavorable decision is obtained from the California Energy Resources Conservation and

*Development Commission on any of the decisions described in paragraph 3) or 4), and shall within 30 days apply to the district hearing board for a schedule for compliance with paragraph A, which shall provide for compliance as expeditiously as practicable but in no event over a longer period of time than provided for in paragraph C.*

- 6) *The owner or operator of a steam generator or boiler exempted by this subsection will immediately become subject to the requirements of paragraph A if the proposed electrical generation capacity is insufficient for the facility to be subject to certification requirements of the California Energy Resources and Development Commission and if the proponent of the cogeneration facility does not comply with the following increments of progress:*
  - a) *by July 1, 1980, file applications for all permits that will be required for the cogeneration facility;*
  - b) *by June 1, 1981, commence construction of the cogeneration facility; and*
  - c) *by June 1, 1984, complete construction of the cogeneration facility.*
- 7) *Any failure of the owner or operator in good faith to abide by the terms of the written agreement referred to in paragraph 2), except where the same is necessitated by governmental action or court order, shall thereupon terminate any exemption in effect under this paragraph, and each day of operation from the effective date of any exemption in effect under this paragraph shall constitute a separate violation of this rule.*

18. COKE OVENS:

MODEL REGULATIONS FOR THE CONTROL  
OF COKE OVEN EMISSIONS

ADOPTED BY THE AIR RESOURCES BOARD  
JANUARY 26, 1977

MODEL REGULATIONS FOR THE CONTROL  
OF COKE OVEN EMISSIONS ADOPTED BY THE AIR RESOURCES BOARD  
JANUARY 26, 1977

Rule 1. Definitions:

- a. Coke oven. "Coke oven" means any retort oven in which coal is converted to coke.
- b. Coke oven battery. "Coke oven battery" means a series of ovens grouped by a common designation or function.
- c. Coking cycle. "Coking cycle" means the period of time between replacing the last charge port lid and removing the coke-side oven door.
- d. Charge port. "Charge port" means any opening in the roof of a coke oven through which coal is introduced.
- e. Charging operation. "Charging operation" means the process of introducing coal into a coke oven. The coal charging operation begins with the first introduction of coal into the oven and ends when the last oven charge port lid is replaced.
- f. Gas offtake system. "Gas offtake system" means any set of piping (e.g., standpipes, goosenecks) that interconnects a coke oven with a collection main which is common to all such systems. The gas offtake system extends from the connection on top of the coke oven to the connection on the collection main.
- g. Hot car. "Hot car" means a vehicle which transfers hot coke from the oven to the area of quenching.

- h. Larry car. "Larry car" means a vehicle which transfers and introduces coal into a coke oven.
- i. Pushing operation. "Pushing operation" means the process of removing coke from the coke oven. The coke pushing operation begins when the coke-side oven door is removed and is completed when the hot car enters the quench tower and the coke-side oven door is replaced.
- j. Visible emission. "Visible emission" means any discharge of an air contaminant into the atmosphere which is darker in shade as that designated No. 0 on the Ringelmann Chart as published by the United States Bureau of Mines, or is of such opacity as to obscure an observer's view to a degree greater than Ringelmann No. 0.

#### Rule 2. Coal Charging Emissions

After six (6) months from date of adoption, a person shall not discharge into the atmosphere any visible emission of air contaminants for a total accumulated time equal to or greater than 60 seconds from any charge port, offtake system or larry car on a coke oven during four (4) consecutive charging operations by the same larry car.

### Rule 3. Charge Port Emissions

No person shall discharge into the atmosphere any visible emission of air contaminants from more than three (3) percent of the total coke oven charge ports per coke oven battery during the coking cycle.

### Rule 4. Gas Offtake System Emissions

No person shall discharge into the atmosphere any visible emission of air contaminants from more than ten (10) percent of the total gas offtake systems per coke oven battery during the coking cycle.

### Rule 5. Oven Door Emissions

- a. No person shall discharge into the atmosphere any visible emission from more than fifteen (15) percent of the total push-side or coke-side coke oven doors per coke oven battery.
- b. After twelve (12) months from date of adoption, a person shall not discharge into the atmosphere any visible emission from more than ten (10) percent of the total push-side or coke-side coke oven doors per coke oven battery.
- c. For the purposes of this rule, emissions from the chuck door located on the push-side coke oven door shall be considered an emission from the push-side coke oven door.

Rule 6. Coke Pushing Emissions

- a. After four (4) years from date of adoption, all coke ovens shall be equipped with a device that will capture and collect all coke-side particulate emissions resulting directly from the pushing operation. The efficiency of the collection device shall be such that the outlet gas shall contain no more than 0.03 pounds of non-condensable particulate matter per ton of coal charged for each oven, averaged over five (5) pushes.
- b. After four (4) years from date of adoption, no person shall discharge into the atmosphere from the hot car, capture or collection device at any time, any visible emission which is:
  - (1) As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
  - (2) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (1) of this rule.



Rule 7. Additional Requirements

In addition to the specific requirements of these regulations no person shall discharge into the atmosphere from any point on a coke oven battery for a period or periods aggregating more than three (3) minutes in any one hour, any visible emission which is:

- a. As dark or darker in shade as that designated No. 2 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
- b. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection a of this rule.

Amend Rule 401 to read as follows:

Rule 401. Visible Emissions

A. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

- (a) As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
- (b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (a) of this rule.

B. This rule shall not apply to coke ovens.

State of California  
AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER THE ADOPTION OF A CHAPTER  
CONCERNING CONTROL STRATEGIES AS A REVISION TO THE STATE OF  
CALIFORNIA IMPLEMENTATION PLAN FOR THE ATTAINMENT AND MAINTENANCE  
OF AMBIENT AIR QUALITY STANDARDS

NOTICE IS HEREBY GIVEN that the State of California Air Resources Board (ARB), pursuant to the authority vested by Health and Safety Code Sections 39600, 39602, and 39605, will hold a public hearing, at the time and place specified below to consider the adoption of Chapter 4, "California Air Quality Control Strategies" as a revision to the State of California Implementation Plan for the Attainment and Maintenance of Ambient Air Quality Standards (SIP).

DATE: April 25, 1979  
TIME: 10:00 a.m.  
PLACE: Sheraton-Town House  
2961 Wilshire Boulevard  
Regency Room  
Los Angeles, CA

The ARB is the state agency responsible for preparation of the SIP. The original State Implementation Plan was completed and submitted to the U.S. Environmental Protection Agency (EPA) in 1972. The Clean Air Act as amended in 1977 mandates the submission of a revised SIP for nonattainment areas (i.e., those areas where one or more national ambient air quality standards are exceeded) to EPA by early 1979. This plan must demonstrate attainment of the national ambient air quality standards by 1982, or under specified conditions, by 1987.

The chapter under consideration is Chapter 4, "California Air Quality Control Strategies". It delineates the control measures currently being implemented in California as well as those measures proposed as part of the nonattainment plans adopted by local agencies and proposed for adoption by the ARB at separate hearings. These strategies have been considered by local agencies and the ARB in the preparation of nonattainment plans pursuant to the Clean Air Act as amended in 1977. This chapter is descriptive only and contains no new regulatory measures for adoption. It should be used in conjunction with the nonattainment plans.

Copies of the proposed chapter and an accompanying staff report on this matter may be obtained at the Air Resources Board Public Information Office, 1102 Q Street (P.O. Box 2815), Sacramento, CA 95812, at least 30 days prior to the public hearing scheduled above. Inquiries on this matter should be directed to Anne Geraghty, Manager, SIP Section, at (916) 322-6154.

NOTICE IS FURTHER GIVEN that all interested persons may present comments, statements, or arguments, orally or in writing, relating to this matter at the time of public hearing. The Board requests that interested persons who have written statements on this matter submit 10 copies of the same at least 7 days prior to the scheduled hearing date in order to provide adequate time for staff analysis and comment. Interested persons are further advised that the Chairman may require that oral testimony be limited to a specified amount of time; however, all persons will be allowed at least 5 minutes of presentation of oral testimony. Following this hearing, the Board upon its own motion or at the instance of any interested person, may take action as set forth without further notice.

The Air Resources Board has determined that this action creates no additional cost to local government pursuant to Section 2231 of the Revenue and Taxation Code, and will not result in any direct costs or savings to any state agency.

CALIFORNIA AIR RESOURCES BOARD

A handwritten signature in dark ink, appearing to read "Thomas C. Austin". The signature is stylized with a large, sweeping "T" and a cursive "Austin".

Thomas C. Austin  
Executive Officer

March 15, 1979